FORM PTO-1390 (Modified) (REV 11-98) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: **112740-287**

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR): **09/937449**

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/DE00/ 876	**21 March 2000**	**26 March 1999**

TITLE OF INVENTION
CORDLESS TELEPHONE

APPLICANT(S) FOR DO/EO/US
Albert Bueckers

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☒ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☒ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☒ Certificate of Mailing by Express Mail
20. ☒ Other items or information:

Return Receipt Postcard.

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/937449	PCT/DE00/ 876	112740-287

21. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

		CALCULATIONS PTO USE ONLY
☐	Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO and International Search Report not prepared by the EPO or JPO	**$1,000.00**
☒	International preliminary examination fee (37 CFR 1.482) not paid to USPTO but Internation Search Report prepared by the EPO or JPO	**$860.00**
☐	International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO	**$710.00**
☐	International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)	**$690.00**
☐	International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)	**$100.00**

ENTER APPROPRIATE BASIC FEE AMOUNT = **$860.00**

Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)). **$0.00**

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims .	13 - 20 =	0	x $18.00	**$0.00**
Independent claims	2 - 3 =	0	x $80.00	**$0.00**
Multiple Dependent Claims **(check if applicable).**			☐	**$0.00**

TOTAL OF ABOVE CALCULATIONS = **$860.00**

Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) **(check if applicable).** ☐ **$0.00**

SUBTOTAL = **$860.00**

Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)). + **$0.00**

TOTAL NATIONAL FEE = **$860.00**

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).** ☒ **$40.00**

TOTAL FEES ENCLOSED = **$900.00**

Amount to be: refunded	$
charged	$

☒ A check in the amount of **$900.00** to cover the above fees is enclosed.

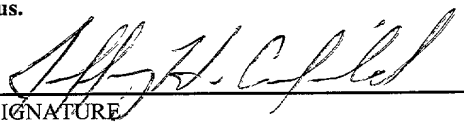
☐ Please charge my Deposit Account No. in the amount of to cover the above fees.
A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **02-1818** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Jeffrey H. Canfield, Esq. (38,404)
Bell, Boyd & Lloyd LLC
P.O. Box 1135
Chicago, Illinois 60690-1135
Telephone: (312) 807-4233



SIGNATURE

Jeffrey H. Canfield
NAME

38,404
REGISTRATION NUMBER

September 26, 2001
DATE

FORM PTO-1390 (Modified) (REV 11-98) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER	
112740-287	
U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR)	
09/937449	
INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE
PCT/DE00/ 876	21 March 2000
PRIORITY DATE CLAIMED	
26 March 1999	

TITLE OF INVENTION
CORDLESS TELEPHONE

PcT/DE00/876

PcT/DE00/00876

nated/Elected Office (DO/EO/US) the following items and other information:

cerning a filing under 35 U.S.C. 371.

ubmission of items concerning a filing under 35 U.S.C. 371.

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national Bureau.

n was filed in the United States Receiving Office (RO/US)

Security enhanced document See back for details

9322

D LLC
CCOUNT

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9321

BELL BOYD & LLOYD LLC
PATENTS & TRADEMARKS ACCOUNT
THREE FIRST NATIONAL PLAZA
70 W. MADISON ST., STE. 3200 PH. 312-372-1121
CHICAGO, IL 60602

2-50/710

DATE September 26, 2001

PAY TO THE ORDER OF "The Honorable Commissioner of Patents and Trademarks" $ 860.00

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Chicago, Illinois 60603

FOR Patent Application 112740-287

⑈009321⑈ ⑆071000505⑆ 5800036328⑈

MP

18. ☐ A change of power of attorney and/or address letter.
19. ☒ Certificate of Mailing by Express Mail
20. ☒ Other items or information:

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BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

PRELIMINARY AMENDMENT

APPLICANT: Albert Bueckers	DOCKET NO.: 112740-287
SERIAL NO.:	GROUP ART UNIT:
	EXAMINER:
INTERNATIONAL APPLICATION NO.:	PCT/DE00/00876
INTERNATIONAL FILING DATE:	21 March 2000
INVENTION: CORDLESS TELEPHONE	

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Please amend the above-identified International Application before entry into the National stage before the U.S. Patent and Trademark Office under 35 U.S.C. §371 as follows:

In the Specification:

Please replace the Specification of the present application, including the Abstract, with the following Substitute Specification:

2/pats

SPECIFICATION

TITLE

"CORDLESS TELEPHONE"

BACKGROUND OF THE INVENTION

The present invention relates to a cordless telephone with a clock function. Cordless telephones have been used since the 1970s - and are now in widespread use. Initially, the elimination of a line connection to the telephone socket represented the single most important functional feature of cordless telephones. However, since their introduction, new functional features and specific applications have been developed. For example, cordless telephones having a number of mobile parts in which voice communication between the individual mobile parts is possible have been offered for some time. The cordless telephone, at the same time, has taken over the function of a house telephone. Modern cordless telephones are also equipped with the so-called Calling Line Identification Presentation (CLIP) function for providing the directory number or name of a caller on the display of the mobile part.

Cordless telephones with clock functions are also known in which the clock time or date and clock time can be indicated on the display of the mobile part and possibly on the fixed part. This represents a useful additional function especially when the mobile part is used outdoors, for example in the garden or in the playground. The combination of the CLIP function in a cordless telephone along with an answering machine function for storing the clock time of a call together with the name and directory number of the caller is also useful.

According to the prior art, the mobile part does not need to have its own time base but the fixed part can display the clock time generated here directly on the display of the mobile part.

The disadvantageous factor in known cordless telephones with clock functions is that when the supply voltage is interrupted, for example in the case of disturbances in the power system or complete depletion of the battery or a change of battery (in the mobile part), the clock function fails. To prevent this, it is also known to back up the clock function by means of a separate power source (button cell or appropriate battery) or by means of a capacitor. These solutions, too, have disadvantages. Thus, the storage capacity of a capacitor used for this purpose may be insufficient for securing the clock function in the case of relatively long interruptions of the power supply. Both the provision of a capacitor and of an auxiliary power source represent an additional expense for components which results in an increase in the cost of the cordless telephone.

SUMMARY OF THE INVENTION

The invention is, therefore, based on the object of specifying an improved cordless telephone with a clock function, in which the availability of the clock function is secured with very high reliability and which accomplishes this function without significant additional construction and/or component costs.

According to an embodiment of the invention a cordless telephone is provided having a clock function. The cordless telephone includes a fixed part and at least one mobile part. The fixed part has a main power supply, a fixed part real-time generator, and a fixed-part clock processor for determining a fixed-part clock time. The at least

one mobile part includes it own power supply, along with a mobile part clock generator and mobile part clock processor for determining a mobile part clock time. The mobile part also includes a mobile part interrogator which is capable of carrying out a clock time interrogation at the fixed part. In another embodiment of the invention, the fixed part also includes a fixed part interrogator which is capable of carrying out a clock time interrogation at the mobile part.

The invention includes the function of securing the clock function via the connection between the fixed part and the mobile part by appropriately utilizing oscillator elements forming a clock generator within the fixed part and in the mobile part, along with the associated processing capacity.

Particularly high reliability may be achieved, ensuring the clock function in an embodiment of the invention in which the backup is bidirectional. According to this embodiment of the invention, resynchronization of the clock function is possible not only via the connection to the fixed part in the case of a power interruption at the mobile part, but also, via the connection to the mobile part in the case of a power interruption of the fixed part.

The interrogators provided for implementing the resynchronization function are preferably constructed in such a manner that they are automatically activated when power is restored at the end of a power interruption at the power supply. Manual actuating elements may also be provided for initiating the resynchronization function. A manual activating element is especially desirable at the mobile part since this is where an interruption of the power supply is likely to have been caused by the user

himself or herself, for example by changing the batteries. Also, the need for synchronization will most likely be noticed at the mobile part.

In an embodiment of the invention, the interrogator or resynchronization mechanism is essentially implemented as software executed on the basis of the existing hardware processing capacity and the existing transmitting and receiving facilities of the cordless telephone.

Using a radio clock module in the fixed part of the cordless telephone increases the reliability of the clock function even further. This also simplifies the construction of the fixed part of the cordless phone, but is also associated with increasing the cost of manufacturing the fixed part of the cordless phone. Therefore, the solution that present invention embodies will be most appropriate when the radio clock module is considered for use for reasons of precision and accuracy.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the figures.

BRIEF DESCRIPTION OF THE FIGURES

Fig. 1 is a functional block diagram of an embodiment of a cordless telephone according to the present invention, and

Fig. 2 is a functional block diagram of an alternate embodiment of the fixed part of a cordless telephone.

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 shows in a highly diagrammatic sectional representation the functional components of a cordless telephone 1. The cordless telephone comprises a fixed part 1A and a mobile part 1B. Additional mobile parts of the same structure may also be

provided. The fixed part 1A has a main power supply 3 fed via a main connection 3a. The main power supply 3 feeds all components of the fixed part, as indicated by the boldly drawn arrow to the right of the main power supply 3. A fixed part controller 5 having a working memory (RAM) 5a and a program memory (ROM) 5b associated therewith in the usual manner controls the backup of the clock function by the fixed part. The controller 5 controls the backup of the clock function at the fixed part in addition to controlling other functions of the cordless telephone which are not related to the invention and will not, therefore, be explained here.

The fixed part 1A has a radio clock receiver 7 followed by a radio time processing stage 9. The output of the time processing stage 9 is connected to a transmitter 13 of the fixed part 1A via a clock time transmitting switch 11 driven by the controller 5. The output of a fixed part receiving stage 15 is connected to (among other things) the controller 5.

The mobile part 1B has a battery power supply 17 which supplies the entire mobile part with power which is again symbolized by a boldly drawn arrow extending to the right. The battery power supply 17 is associated with a voltage sensor 19 followed by a threshold discriminator 21 for detecting voltage interruptions or an inadmissible drop in the operating voltage. The output of the threshold discriminator 21 is connected to the input of a flip flop 23. The output of flip flop 23 is connected to a clock time interrogation generator 25. The flip flop 23 can be a monostable flip flop or a bistable flip flop depending on the construction of the interrogation generator 25. The output of the interrogation generator 25 is connected to a mobile part transmitting stage 27.

As with the fixed part 1A, the mobile part 1B also has a controller, mobile part controller 29, with an associated working memory 29a and a program memory 29b. The input of the controller 29 is connected to an input keypad 31 of the mobile part 1B. A clock time indication, among other functions, can be called up via the keypad 31. The mobile part 1B has a crystal base 33 that forms an internal clock generator. The crystal base 33 is followed by divider and counter stages in the usual manner for obtaining a time indication. These are combined in a time generating stage 35 shown in the figure. The output of the time generating stage 35 is connected to a mobile part display 39 via a clock time display switch 37 which is driven by the mobile part controller 29. The output of a mobile part receiving stage 41 is connected to the mobile part controller 29. The mobile part controller 29, in turn, is connected to a control input of the time generating stage 35 via a time synchronization stage 43.

The arrangement shown in Fig. 1 operates as follows: a highly accurate running real-time indication is permanently provided by the radio clock receiver 7 and the radio time processing stage 9 in the fixed part 1A. This running real time indication can be optionally displayed at the fixed part and/or can be used for control purposes. Should the main power supply fail at any time, automatic resynchronization of the real-time generation is performed after the power supply has been restored in a manner known from radio clocks. Thus, the real-time generation at the fixed part 1A as synchronized with the radio time is available again in the fixed part a short time after the end of the interruption.

A second running real-time which is independent of the fixed part is obtained in the mobile part 1B from the clock signals of the crystal base 33 by means of the

time generating stage 35. This second running real-time generated at the mobile part 1B may be displayed on the display 39 by the mobile part controller 29 via the clock time display switch 37 when the appropriate input key is activated by the user of the control. When the batteries are exhausted or are changed, the operating voltage provided by the battery power supply 17 drops below a permissible minimum value. The drop in voltage is detected via the voltage sensor 19 and the threshold discriminator 21 and leads to the generation of an activation pulse from the flip flop 23 as soon as the operating voltage detected again rises above the permissible minimum value (such as, after the batteries have been replaced or recharged). The activation pulse output from flip-flop 23 is input to clock time interrogation generator 25. The clock time interrogation generator then outputs a predetermined interrogation sequence to the mobile part transmitting stage 27 and, at the same time, activates the mobile part controller 29 for processing a response signal from the fixed part 1A which is to be received via the mobile part receiving stage 41.

The response signal is generated at the fixed part 1A when the interrogation signal transmitted by the mobile part transmitting stage 27 via the air interface (symbolized by a zig-zag arrow) is received by the fixed part receiving stage 15. The received interrogation signal is processed in the fixed part controller 5 on the basis of a program stored in the program memory 5b. The controller 5 closes the clock time transmitting switch 11 and the time signal present at the output of the radio time processing stage 9 is transferred to the fixed part transmitting stage 13 where it is transmitted by the fixed part transmitting stage 13 to the mobile part receiving stage 41. From the output of the mobile part receiving stage 41 radio time reaches the

mobile part controller 29 which, on the basis of a program stored in its program memory 29b, drives the time synchronization stage 43 which, in turn, adjusts the time generating stage 35 to the radio time transmitted from the fixed part. In this manner, a correct clock time which can be optionally displayed is provided in the mobile part 1b virtually immediately after the end of the interruption of the power supply in the mobile part 1b. In this arrangement, the receiving connection for clock time synchronization only exists for a very short time in a power-saving manner.

Fig. 2 shows an embodiment of the fixed part which is modified compared with the embodiment shown in Fig. 1. Components corresponding to one another in both figures are designated by the same reference numbers and will not be explained further in the text which follows. The most significant difference in the embodiment shown in Fig. 2 is that the radio clock receiver 7 of the first embodiment is replaced by an inexpensive crystal time base 7' which is not self-resynchronizable. In this embodiment of the fixed part 1A', a voltage discriminator 45 must be provided at the output of the power supply 3 and a time synchronization stage 47 is connected to a control input of the modified time processing stage (crystal time processing stage) 9'. This arrangement is similar to the mobile part 1B according to Fig. 1.

The output of the voltage discriminator 45 is connected to a flip flop 49 which, in a similar manner to the flip flop 23 of the mobile part from figure 1, outputs a trigger pulse as soon as the operating voltage again rises above a predetermined threshold after an inadmissible drop in the operating voltage of the main power supply 3. This trigger pulse activates a clock time interrogation generator 51 at the fixed part 1A' which outputs a preprogrammed interrogation signal sequence to the fixed part

transmitting stage 13. Analogously to the sequence of resynchronization of the mobile part clock time, described above in connection with figure 1, this interrogation signal is received in the receiving part of the partner station (in this case of the mobile part). The interrogation signal is processed in the mobile part controller 29 and is answered with the output of a clock time information item via the mobile part transmitter 27. The clock time information item is received in the fixed part receiver 15 and is supplied via the controller 5 to the time synchronization stage 47 which uses it for resynchronizing the crystal time processing stage 9'.

At the mobile part 1B, this function requires the provision of a connection between the output of the time generating stage 35 and the input of the mobile part transmitting stage 27 according to Fig. 1 which is enabled via the controller 29 when an interrogation signal is received via the receiving stage 41. Since the configuration of the mobile part only differs from that shown in Fig. 1 in this aspect, the mobile part has not been pictorially represented again in Fig. 2.

It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the spirit and scope of the present invention and without diminishing its intended advantages. It is therefore intended that such changes and modifications be covered by the appended claims.

CLAIMS

The invention is claimed as follows:

1. A cordless telephone with a clock function comprising:

a fixed part with a main power supply and a fixed part real-time generator and a fixed part clock processing means for determining a fixed part clock time,

at least one mobile part with an internal power supply, a mobile part clock generator and mobile part clock processing means for determining a mobile part clock time,

the mobile part having a mobile part interrogation means for carrying out a clock time interrogation at the fixed part.

2. The cordless telephone as claimed in claim 1, voltage sensor and a processing means for detecting the state of the internal power supply of said mobile part, said processing means configured to and automatically activate the mobile part interrogation means after an interruption of the internal power supply.

3. The cordless telephone as claimed in claim 2, wherein that the mobile part interrogation means is followed by synchronization means for resynchronizing the fixed part clock time and the mobile part clock time on the basis of a time information item received during a clock time interrogation.

4. The cordless telephone as claimed in claims 3, wherein the mobile part interrogation means, and the synchronization means are implemented as software

executed on conventional cordless telephone control processors in the fixed part and in the mobile part.

5. The cordless telephone as claimed in claim 1, characterized in that the fixed part has fixed part interrogation means for carrying out a clock time interrogation at the mobile part.

6. The cordless telephone as claimed in claim 5, wherein the fixed-part interrogation means is associated with a voltage sensor and a processing means for detecting the state of the main power supply and automatic activation of the fixed part interrogation means after an interruption of the main power supply.

7. The cordless telephone as claimed in claim 6, wherein that the mobile part interrogation means and the fixed part interrogation means are followed by synchronization means for resynchronizing the fixed part clock time and the mobile part clock time on the basis of a time information item received during a clock time interrogation.

8. The cordless telephone as claimed in claims 7, wherein the mobile part interrogation means, the fixed part interrogation means and the synchronization means are implemented as software executed on conventional cordless telephone control processors in the fixed part and in the mobile part.

9. A cordless telephone with clock function, having

a fixed part with main power supply and a fixed-part clock generator and fixed-part clock processing means for determining a fixed-part clock time,

with at least one mobile part with internal power supply, a mobile part clock generator and mobile part clock processing means for determining a mobile part clock time,

wherein the fixed part has fixed part interrogation means for carrying out a clock time interrogation at the mobile part.

10. The cordless telephone as claimed in claim 9, characterized in that the fixed part has fixed part interrogation means for carrying out a clock time interrogation at the mobile part.

11. The cordless telephone as claimed in claim 9, wherein that the fixed part interrogation means is followed by synchronization means for resynchronizing the fixed part clock time and the mobile part clock time on the basis of a time information item received during a clock time interrogation.

12. The cordless telephone as claimed in claim 11, characterized in that the fixed-part interrogation means is associated with a voltage sensor and a processing means for detecting the state of the main power supply and automatic activation of the fixed part interrogation means after an interruption of the main power supply.

13. The cordless telephone as claimed in claims 12, wherein the mobile part interrogation means, the fixed part interrogation means and the synchronization means are implemented as software executed on conventional cordless telephone control processors in the fixed part and in the mobile part.

ABSTRACT

A cordless telephone with a clock function is provided having a fixed part with mains power supply and a fixed-part time generator or clock generator and a mobile part with internal power supply and a mobile part time generator or clock generator, the mobile part having interrogation means for carrying out a clock time interrogation at the fixed part or conversely after an interruption of the respective internal power supply.

REMARKS

The present amendment make editorial changes and corrects typographical errors in the specification, which includes the Abstract, in order to conform the specification to the requirements of United States Patent Practice.

Early consideration on the merits is respectfully requested

Respectfully submitted,

By: _____

Jeffrey H. Canfield, Esq. (Reg. No. 38,404)
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Chicago, Illinois 60690-1135
(312) 807-4233
Attorneys for Applicant

BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

SUBMISSION OF DRAWINGS

APPLICANT:	Albert Bueckers	DOCKET NO.:	112740-287
SERIAL NO:		GROUP ART UNIT:	
FILED:		EXAMINER:	
INTERNATIONAL APPLICATION NO.		PCT/DE00/00876	
INTERNATIONAL FILING DATE:		21 March 2000	
INVENTION:	CORDLESS TELEPHONE		

Assistant Commissioner for Patents,
Washington, D.C. 20231

Sir:

Applicant herewith submits two sheets (Figs. 1-2) of drawings for the above-referenced PCT application.

Respectfully submitted,

(Reg. No. 38,404)

Jeffrey H. Canfield, Esq.
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Chicago, Illinois 60690-1135
(312) 807-4233
Attorneys for Applicant

Description

Cordless telephone

The invention relates to a cordless telephone with a clock function.

Cordless telephones have been used since the 70s - initially in the United States and are now in widespread use. Whereas, initially, the elimination of a line connection to the telephone socket represented the single most important functional feature in its use, new functional features and specific applications have been developed in the meantime. Thus, cordless telephones having a number of mobile parts have been offered for some time in which a voice connection between the individual mobile parts is also possible, the cordless telephone, at the same time, taking over the function of a house telephone. Modern cordless telephones are also equipped with the so-called CLIP (calling line identification presentation) function of the indication of the directory number or name of a caller on the display of the mobile part.

Cordless telephones with clock function are also known in which the clock time or date and clock time can be indicated on the display of the mobile part and possibly the fixed part. This represents a useful additional function especially when the mobile part is used outdoors, for example in the garden or in the playground. The combination with the CLIP function in a cordless telephone with answering machine for storing the clock time of a call together with the name and directory number of the caller is also useful.

According to the prior art, the mobile part does not need to have its own time base but the fixed part can display the clock time generated here directly on the display of the mobile part.

The disadvantageous factor in known cordless telephones with clock functions is that when the supply voltage is interrupted, for example in the case of disturbances in the power system or complete depletion of the battery or a change of battery (in the mobile part), the clock function fails. To prevent this, it is also known to back up the clock function by means of a separate power source (button cell or appropriate battery) or by means of a capacitor. These solutions, too, have disadvantages. Thus, the storage capacity of a capacitor used for this purpose may be insufficient for securing the clock function in the case of relatively long interruptions of the power supply. Both the provision of a capacitor and of an auxiliary power source represent an additional expenditure on components which results in an increase in costs.

The invention is, therefore, based on the object of specifying an improved cordless telephone with clock function, in which the availability of this function is secured with very high probability and which manages without significant additional constructional and cost expenditure.

This object is achieved by a cordless telephone having the features of claim 1 and 2, respectively.

The invention includes the fundamental technical teaching of securing the clock function via the connection between fixed part and mobile part by appropriately utilizing oscillator elements existing as clock generator in the fixed part and the mobile part, and the associated processing capacity.

Particularly high reliability for ensuring the clock function is created in an embodiment in which the

backup is bidirectional, i.e. resynchronization of the clock function is not only possible via the connection to the fixed part in the case of a power interruption at the mobile part but

in the case of a power interruption of the fixed part, resynchronization of the clock function established there is also possible via the connection to the mobile part.

The interrogation means provided for implementing the resynchronization function are preferably constructed in such a manner that they are automatically activated after the end of the interruption of a power supply. In principle, the provision of a manual actuating element is also possible - in any case in the mobile part in which an interruption of the power supply is, as a rule, performed by the user himself, for example by changing the batteries, or is at least noticed.

The effectiveness of the invention essentially depends on the interrogation or resynchronization means essentially being implemented as software on the basis of the existing hardware processing capacity and the existing transmitting and receiving facilities.

Using a radio clock module in the fixed part increases the availability of the clock function even further and simplifies the construction at the fixed part but, naturally, is associated with increased cost expenditure. The solution will be appropriate, therefore, if the use of the radio clock module is being considered for reasons of precision of the time information.

Furthermore, advantages and suitabilities of the invention are obtained from the subclaims and the following description of preferred embodiments with reference to the figures, in which:

Figure 1 shows a functional block diagram of the components of an embodiment of a cordless telephone which are essential for carrying out the invention, and

Figure 2 shows a functional block diagram of an embodiment of the fixed part which is modified compared with figure 1.

Figure 1 shows in a highly diagrammatic sectional representation the functional components of a cordless telephone 1 which are essential for the explanation of the invention, which telephone comprises a fixed part 1A and a mobile part 1B (or a number of mobile parts of the same structure). The fixed part 1A has a mains power supply 3 via a mains connection 3a which feeds all components of the fixed part, indicated by a boldly drawn arrow to the right. A fixed part controller 5 with working memory (RAM) 5a and program memory (ROM) 5b associated in the usual manner controls (apart from its remaining functions which are not related to the invention and will not, therefore, be explained here) the backup of the clock function by the fixed part.

The fixed part has a radio clock receiver 7 followed by a radio time processing stage 9, the output of which is connected to a transmitter 13 of the mobile part via a clock time transmitting switch 11 driven by the controller 5. The output of a fixed part receiving stage 15 is connected to (among other things) the controller 5.

The mobile part 1B has a battery power supply 17 which supplies the entire mobile part with power which is again symbolized by a boldly drawn arrow. The battery power supply 17 is associated with a voltage sensor 19 followed by a threshold discriminator 21 for detecting voltage interruptions or an inadmissible drop in the operating voltage. The output of the threshold discriminator 21 is connected to the input of a flip flop 23, the output of which is connected to a clock time interrogation generator 25 and which can be

in the form of a monostable flip flop or else a bistable flip flop depending on the actual construction of the interrogation generator. The output of the

interrogation generator 25 is connected to a mobile part transmitting stage 27.

The mobile part, too, has a controller (mobile part controller) 29 with associated working memory 29a and program memory 29b. The input of the controller is connected to an input keypad 31 of the mobile part via which a clock time indication, for example, can be called up. The mobile part 1B has a crystal base 33 as internal clock generator which is followed in the usual manner by divider and counter stages for obtaining a time indication, which are combined in a time generating stage 35 in the figure. The output of the time generating stage 35 is connected to a display 39 of the mobile part via a clock time display switch 37 driven by the mobile part controller 29. The output of a mobile part receiving stage 41 is connected to the mobile part controller 29. The mobile part controller 29, in turn, is connected to a control input of the time generating stage 35 via a time synchronization stage 43.

The operation of the arrangement shown is as follows: in the fixed part 1A, a highly accurate real time is permanently provided by the radio clock receiver 7 and the radio time processing stage 9, which real time can be optionally displayed there (which is not part of the invention) and/or can be used for control purposes. Should the mains power supply fail at any time, automatic resynchronization of the real-time generation is performed in a manner known from radio clocks after the supply has been restored, so that the radio time is available again in the fixed part a short time after the end of the interruption.

In the mobile part 1B, a real time which is independent of the fixed part and is also less accurate is

obtained from the clock signals of the crystal base 33 by means of the time generating stage 35 and is displayed on the display 39 by the mobile part controller 29 via the clock time display switch 37 with

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the appropriate key input by the user of the control. When the batteries are exhausted or are changed, the operating voltage provided by the battery power supply 17 drops below a permissible minimum value which is detected via the voltage sensor 19 and the threshold discriminator 21 and leads to the generation of an activation pulse for the clock time interrogation generator 25 by the flip flop 23 as soon as the operating voltage detected rises above the permissible minimum value again (after the batteries have been charged up, for example, or changed). The clock time interrogation generator then outputs a predetermined interrogation sequence to the mobile part transmitting stage 27 and, at the same time, activates the mobile part controller 29 for processing a response signal of the fixed part 1A which is to be received then via the mobile part receiving stage 41.

This response signal is generated there in that the interrogation signal transmitted by the mobile part transmitting stage 27 via the air interface (symbolized by a zig-zag arrow) is received by the fixed part receiving stage 15, processed in the fixed part controller 5 on the basis of a program stored in the program memory 5b and then the clock time transmitting switch 11 of the fixed part is closed. The time signal present at the output of the radio time processing stage 9 is then transferred to the fixed part transmitting stage 13 and transmitted by the latter to the mobile part receiving stage 41. From the output of the latter, it reaches the mobile part controller 29 which, on the basis of a program stored in the program memory 29b, drives the time synchronization stage 43 which, in turn, adjusts the time generating stage 35 to the radio time transmitted from the fixed part. In this manner, a correct clock time which can be optionally displayed is provided in the mobile part 1b virtually

immediately after the end of the interruption of the power supply in the mobile part 1b. In this arrangement, the receiving connection for clock time synchronization only exists for a very short time in a power-saving manner.

Figure 2 shows an implementation of the fixed part which is modified compared with the embodiment shown in figure 1. Components corresponding to one another in both figures are also designated by the same reference numbers and will not be explained again in the text which follows. The most significant difference consists in replacing the radio clock receiver by an inexpensive crystal time base 7' which, however, is not self-resynchronizable. In this embodiment of the fixed part 1A', a voltage discriminator 45 must be provided at the output of the power supply 3 and a time synchronization stage 47 which is connected to a control input of the modified time processing stage (crystal time processing stage) 9' must be provided in this embodiment of the fixed part 1A' in a similar manner to the mobile part according to figure 1.

The output of the voltage discriminator 45 is connected to a flip flop 49 which, in a similar manner to the flip flop 23 of the mobile part from figure 1, outputs a trigger pulse as soon as the operating voltage rises again after an inadmissible drop in the operating voltage of the mains power supply 3. This trigger pulse activates a clock time interrogation generator 51 at the fixed part which outputs a preprogrammed interrogation signal sequence to the fixed part transmitting stage 13. Analogously to the sequence of resynchronization of the mobile part clock time, described above in connection with figure 1, this interrogation is received in the receiving part of the partner station (in this case of the mobile part), processed in its controller 29 and answered with the output of a clock time information item via its transmitter 27. This information is received in the fixed part receiver 15 and supplied via the controller 5 to the time synchronization stage 47 which uses it for

resynchronizing the crystal time processing stage 9'.

At the mobile part, this function requires the provision of a connection between the output of the time generating stage 35 and the input of the mobile part transmitting stage 27 according to figure 1 which is enabled via the controller 29 when an interrogation signal

is received via the receiving stage 41. Since the configuration of the mobile part only differs from that shown in figure 1 in this aspect, the mobile part has not been pictorially represented again in figure 2.

Patent claims

Cordless telephone

1. A cordless telephone (1) with clock function, having
- a fixed part (1A; 1A') with mains power supply (3) and a fixed part real-time generator (7, 9) or a fixed-part clock generator (7') and fixed-part clock processing means (9') for determining a fixed-part clock time,
- with at least one mobile part (1B) with internal power supply (17), a mobile part clock generator (33) and mobile part clock processing means (35) for determining a mobile part clock time,
wherein
- the mobile part (1B) has mobile part interrogation means (25, 27, 29, 41) for carrying out a clock time interrogation at the fixed part (1A).

2. A cordless telephone (1) with clock function, having
- a fixed part (1A; 1A') with mains power supply (3) and a fixed part real-time generator (7, 9) or a fixed-part clock generator (7') and fixed-part clock processing means (9') for determining a fixed-part clock time,
- with at least one mobile part (1B) with internal power supply (17), a mobile part clock generator (33) and mobile part clock processing means (35) for determining a mobile part clock time,
wherein the fixed part (1B) has fixed part interrogation means (51, 13, 5, 15) for carrying out a clock time interrogation at the mobile part (1B).

3. The cordless telephone as claimed in claim 1 or 2, characterized in that the mobile part interrogation

means (25, 27, 29, 41) have voltage sensor and processing means (19, 21, 23) for detecting the state of the internal power supply (17) and automatic

activation of the mobile part interrogation means after an interruption of the internal power supply.

4. The cordless telephone as claimed in claim 2 or 3, characterized in that the fixed part interrogation means (51, 13, 5, 15) are associated with voltage sensor and processing means (45, 49) for detecting the state of the mains power supply and automatic activation of the fixed part interrogation means after an interruption of the mains power supply.

5. The cordless telephone as claimed in one of the preceding claims, characterized in that the mobile part interrogation means (25, 27, 29, 41) and the fixed part interrogation means (51, 13, 5, 15) are followed by synchronization means (43; 47) for resynchronizing internal clock time generating means (35; 9') on the basis of a time information item received during the clock time interrogation.

6. The cordless telephone as claimed in one of the preceding claims, characterized in that the mobile part interrogation means (25, 27, 29, 41), the fixed part interrogation means (51, 13, 5, 15) and the synchronization means (43; 47) are implemented as software on a conventional hardware base.

GR 99 P 1511

Abstract

Cordless telephone

A cordless telephone with clock function which has a fixed part with mains power supply and a fixed-part time generator or clock generator and a mobile part with internal power supply and a mobile part time generator or clock generator, the mobile part having interrogation means for carrying out a clock time interrogation at the fixed part or conversely after an interruption of the respective internal power supply.

Figure 1

Description

Cordless telephone

The invention relates to a cordless telephone with a clock function.

Cordless telephones have been used since the 70s - initially in the United States and are now in widespread use. Whereas, initially, the elimination of a line connection to the telephone socket represented the single most important functional feature in its use, new functional features and specific applications have been developed in the meantime. Thus, cordless telephones having a number of mobile parts have been offered for some time in which a voice connection between the individual mobile parts is also possible, the cordless telephone, at the same time, taking over the function of a house telephone. Modern cordless telephones are also equipped with the so-called CLIP (calling line identification presentation) function of the indication of the directory number or name of a caller on the display of the mobile part.

Cordless telephones with clock function are also known in which the clock time or date and clock time can be indicated on the display of the mobile part and possibly the fixed part. This represents a useful additional function especially when the mobile part is used outdoors, for example in the garden or in the playground. The combination with the CLIP function in a cordless telephone with answering machine for storing the clock time of a call together with the name and directory number of the caller is also useful.

According to the prior art, the mobile part does not need to have its own time base but the fixed part can display the clock time generated here directly on the display of the mobile part.

The disadvantageous factor in known cordless telephones with clock functions is that when the supply voltage is interrupted, for example in the case of disturbances in the power system or complete depletion of the battery or a change of battery (in the mobile part), the clock function fails. To prevent this, it is also known to back up the clock function by means of a separate power source (button cell or appropriate battery) or by means of a capacitor. These solutions, too, have disadvantages. Thus, the storage capacity of a capacitor used for this purpose may be insufficient for securing the clock function in the case of relatively long interruptions of the power supply. Both the provision of a capacitor and of an auxiliary power source represent an additional expenditure on components which results in an increase in costs.

The invention is, therefore, based on the object of specifying an improved cordless telephone with clock function, in which the availability of this function is secured with very high probability and which manages without significant additional constructional and cost expenditure.

This object is achieved by a cordless telephone having the features of claim 1 and 2, respectively.

The invention includes the fundamental technical teaching of securing the clock function via the connection between fixed part and mobile part by appropriately utilizing oscillator elements existing as clock generator in the fixed part and the mobile part, and the associated processing capacity.

Particularly high reliability for ensuring the clock function is created in an embodiment in which the

backup is bidirectional, i.e. resynchronization of the clock function is not only possible via the connection to the fixed part in the case of a power interruption at the mobile part but

in the case of a power interruption of the fixed part, resynchronization of the clock function established there is also possible via the connection to the mobile part.

The interrogation means provided for implementing the resynchronization function are preferably constructed in such a manner that they are automatically activated after the end of the interruption of a power supply. In principle, the provision of a manual actuating element is also possible - in any case in the mobile part in which an interruption of the power supply is, as a rule, performed by the user himself, for example by changing the batteries, or is at least noticed.

The effectiveness of the invention essentially depends on the interrogation or resynchronization means essentially being implemented as software on the basis of the existing hardware processing capacity and the existing transmitting and receiving facilities.

Using a radio clock module in the fixed part increases the availability of the clock function even further and simplifies the construction at the fixed part but, naturally, is associated with increased cost expenditure. The solution will be appropriate, therefore, if the use of the radio clock module is being considered for reasons of precision of the time information.

Furthermore, advantages and suitabilities of the invention are obtained from the subclaims and the following description of preferred embodiments with reference to the figures, in which:

Figure 1 shows a functional block diagram of the components of an embodiment of a cordless telephone which are essential for carrying out the invention, and

Figure 2 shows a functional block diagram of an embodiment of the fixed part which is modified compared with figure 1.

Figure 1 shows in a highly diagrammatic sectional representation the functional components of a cordless telephone 1 which are essential for the explanation of the invention, which telephone comprises a fixed part 1A and a mobile part 1B (or a number of mobile parts of the same structure). The fixed part 1A has a mains power supply 3 via a mains connection 3a which feeds all components of the fixed part, indicated by a boldly drawn arrow to the right. A fixed part controller 5 with working memory (RAM) 5a and program memory (ROM) 5b associated in the usual manner controls (apart from its remaining functions which are not related to the invention and will not, therefore, be explained here) the backup of the clock function by the fixed part.

The fixed part has a radio clock receiver 7 followed by a radio time processing stage 9, the output of which is connected to a transmitter 13 of the mobile part via a clock time transmitting switch 11 driven by the controller 5. The output of a fixed part receiving stage 15 is connected to (among other things) the controller 5.

The mobile part 1B has a battery power supply 17 which supplies the entire mobile part with power which is again symbolized by a boldly drawn arrow. The battery power supply 17 is associated with a voltage sensor 19 followed by a threshold discriminator 21 for detecting voltage interruptions or an inadmissible drop in the operating voltage. The output of the threshold discriminator 21 is connected to the input of a flip flop 23, the output of which is connected to a clock time interrogation generator 25 and which can be

in the form of a monostable flip flop or else a bistable flip flop depending on the actual construction of the interrogation generator. The output of the

interrogation generator 25 is connected to a mobile part transmitting stage 27.

The mobile part, too, has a controller (mobile part controller) 29 with associated working memory 29a and program memory 29b. The input of the controller is connected to an input keypad 31 of the mobile part via which a clock time indication, for example, can be called up. The mobile part 1B has a crystal base 33 as internal clock generator which is followed in the usual manner by divider and counter stages for obtaining a time indication, which are combined in a time generating stage 35 in the figure. The output of the time generating stage 35 is connected to a display 39 of the mobile part via a clock time display switch 37 driven by the mobile part controller 29. The output of a mobile part receiving stage 41 is connected to the mobile part controller 29. The mobile part controller 29, in turn, is connected to a control input of the time generating stage 35 via a time synchronization stage 43.

The operation of the arrangement shown is as follows: in the fixed part 1A, a highly accurate real time is permanently provided by the radio clock receiver 7 and the radio time processing stage 9, which real time can be optionally displayed there (which is not part of the invention) and/or can be used for control purposes. Should the mains power supply fail at any time, automatic resynchronization of the real-time generation is performed in a manner known from radio clocks after the supply has been restored, so that the radio time is available again in the fixed part a short time after the end of the interruption.

In the mobile part 1B, a real time which is independent of the fixed part and is also less accurate is

obtained from the clock signals of the crystal base 33 by means of the time generating stage 35 and is displayed on the display 39 by the mobile part controller 29 via the clock time display switch 37 with

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the appropriate key input by the user of the control. When the batteries are exhausted or are changed, the operating voltage provided by the battery power supply 17 drops below a permissible minimum value which is detected via the voltage sensor 19 and the threshold discriminator 21 and leads to the generation of an activation pulse for the clock time interrogation generator 25 by the flip flop 23 as soon as the operating voltage detected rises above the permissible minimum value again (after the batteries have been charged up, for example, or changed). The clock time interrogation generator then outputs a predetermined interrogation sequence to the mobile part transmitting stage 27 and, at the same time, activates the mobile part controller 29 for processing a response signal of the fixed part 1A which is to be received then via the mobile part receiving stage 41.

This response signal is generated there in that the interrogation signal transmitted by the mobile part transmitting stage 27 via the air interface (symbolized by a zig-zag arrow) is received by the fixed part receiving stage 15, processed in the fixed part controller 5 on the basis of a program stored in the program memory 5b and then the clock time transmitting switch 11 of the fixed part is closed. The time signal present at the output of the radio time processing stage 9 is then transferred to the fixed part transmitting stage 13 and transmitted by the latter to the mobile part receiving stage 41. From the output of the latter, it reaches the mobile part controller 29 which, on the basis of a program stored in the program memory 29b, drives the time synchronization stage 43 which, in turn, adjusts the time generating stage 35 to the radio time transmitted from the fixed part. In this manner, a correct clock time which can be optionally displayed is provided in the mobile part 1b virtually

immediately after the end of the interruption of the power supply in the mobile part 1b. In this arrangement, the receiving connection for clock time synchronization only exists for a very short time in a power-saving manner.

Figure 2 shows an implementation of the fixed part which is modified compared with the embodiment shown in figure 1. Components corresponding to one another in both figures are also designated by the same reference numbers and will not be explained again in the text which follows. The most significant difference consists in replacing the radio clock receiver by an inexpensive crystal time base 7′ which, however, is not self-resynchronizable. In this embodiment of the fixed part 1A′, a voltage discriminator 45 must be provided at the output of the power supply 3 and a time synchronization stage 47 which is connected to a control input of the modified time processing stage (crystal time processing stage) 9′ must be provided in this embodiment of the fixed part 1A′ in a similar manner to the mobile part according to figure 1.

The output of the voltage discriminator 45 is connected to a flip flop 49 which, in a similar manner to the flip flop 23 of the mobile part from figure 1, outputs a trigger pulse as soon as the operating voltage rises again after an inadmissible drop in the operating voltage of the mains power supply 3. This trigger pulse activates a clock time interrogation generator 51 at the fixed part which outputs a preprogrammed interrogation signal sequence to the fixed part transmitting stage 13. Analogously to the sequence of resynchronization of the mobile part clock time, described above in connection with figure 1, this interrogation is received in the receiving part of the partner station (in this case of the mobile part), processed in its controller 29 and answered with the output of a clock time information item via its transmitter 27. This information is received in the fixed part receiver 15 and supplied via the controller 5 to the time synchronization stage 47 which uses it for

resynchronizing the crystal time processing stage 9'.

At the mobile part, this function requires the provision of a connection between the output of the time generating stage 35 and the input of the mobile part transmitting stage 27 according to figure 1 which is enabled via the controller 29 when an interrogation signal

is received via the receiving stage 41. Since the configuration of the mobile part only differs from that shown in figure 1 in this aspect, the mobile part has not been pictorially represented again in figure 2.

Patent claims

1. A cordless telephone (1) with clock function, having
- a fixed part (1A; 1A') with mains power supply (3) and a fixed part real-time generator (7, 9) or a fixed-part clock generator (7') and fixed-part clock processing means (9') for determining a fixed-part clock time,
- with at least one mobile part (1B) with internal power supply (17), a mobile part clock generator (33) and mobile part clock processing means (35) for determining a mobile part clock time,

wherein
- the mobile part (1B) has mobile part interrogation means (25, 27, 29, 41) for carrying out a clock time interrogation at the fixed part (1A).

2. A cordless telephone (1) with clock function, having
- a fixed part (1A; 1A') with mains power supply (3) and a fixed part real-time generator (7, 9) or a fixed-part clock generator (7') and fixed-part clock processing means (9') for determining a fixed-part clock time,
- with at least one mobile part (1B) with internal power supply (17), a mobile part clock generator (33) and mobile part clock processing means (35) for determining a mobile part clock time,

wherein the fixed part (1B) has fixed part interrogation means (51, 13, 5, 15) for carrying out a clock time interrogation at the mobile part (1B).

3. The cordless telephone as claimed in claim 1, characterized in that the fixed part (1A; 1A') has

fixed part interrogation means (51, 13, 5, 15) for carrying out a clock time interrogation at the mobile part (1B).

4. The cordless telephone as claimed in claim 2, characterized in that

the mobile part (1B) has mobile part interrogation means (25, 27, 29, 41) for carrying out a clock time interrogation at the fixed part (1A).

5. The cordless telephone as claimed in claim 1 or 4, characterized in that the mobile part interrogation means (25, 27, 29, 41) have voltage sensor and processing means (19, 21, 23) for detecting the state of the internal power supply (17) and automatic activation of the mobile part interrogation means after an interruption of the internal power supply.

6. The cordless telephone as claimed in claim 2 or 3, characterized in that the fixed-part interrogation means (51, 13, 5, 15) are associated with voltage sensors and processing means (45, 49) for detecting the state of the mains power supply and automatic activation of the fixed part interrogation means after an interruption of the mains power supply.

7. The cordless telephone as claimed in one of the preceding claims, characterized in that the mobile part interrogation means (25, 27, 29, 41) and the fixed part interrogation means (51, 13, 5, 15) are followed by synchronization means (43; 47) for resynchronizing internal clock time generating means (35; 9') on the basis of a time information item received during the clock time interrogation.

8. The cordless telephone as claimed in one of the preceding claims, characterized in that the mobile part interrogation means (25, 27, 29, 41), the fixed part interrogation means (51, 13, 5, 15) and the synchronization means (43; 47) are implemented as software on a conventional hardware base.

FIG 1

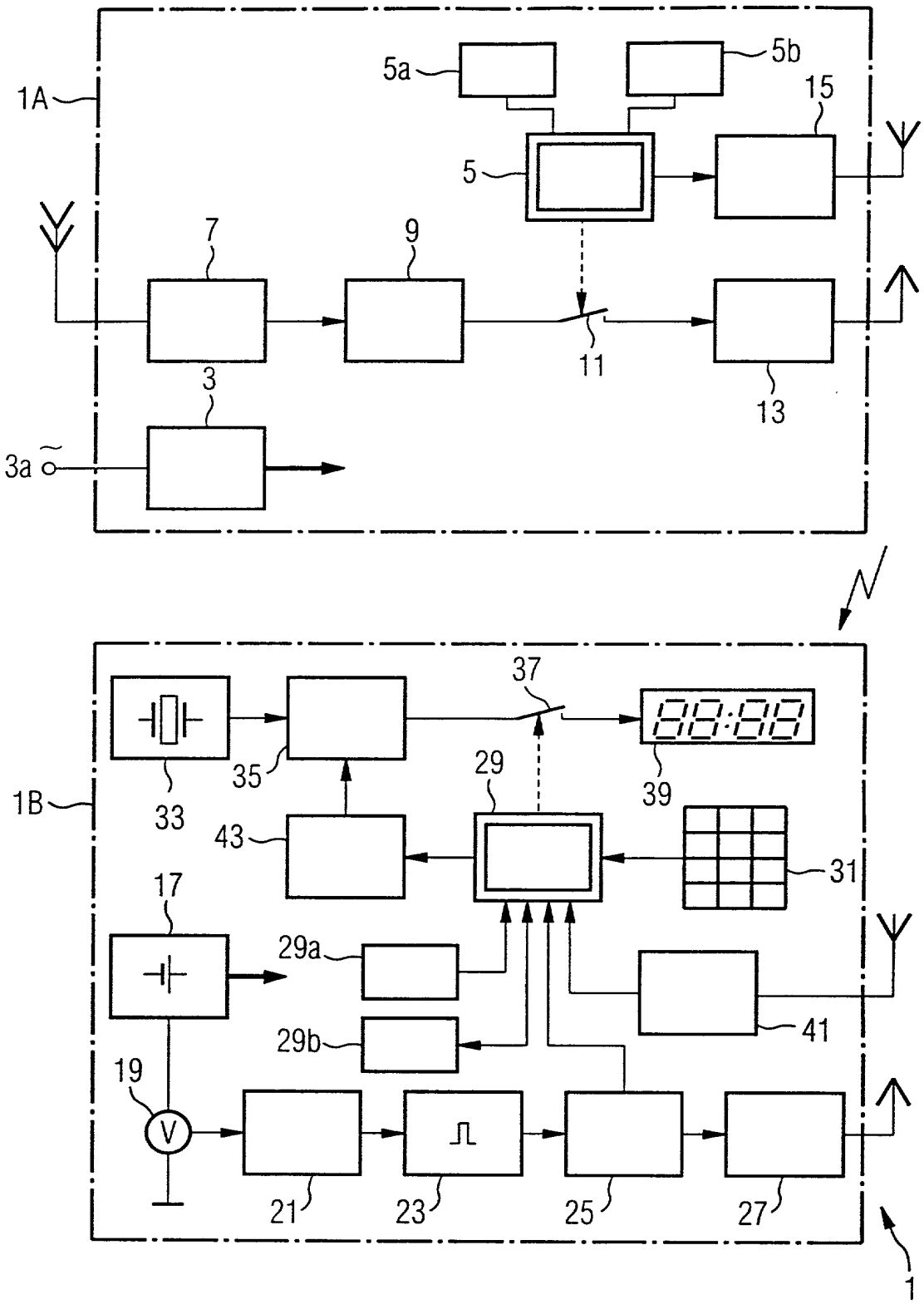
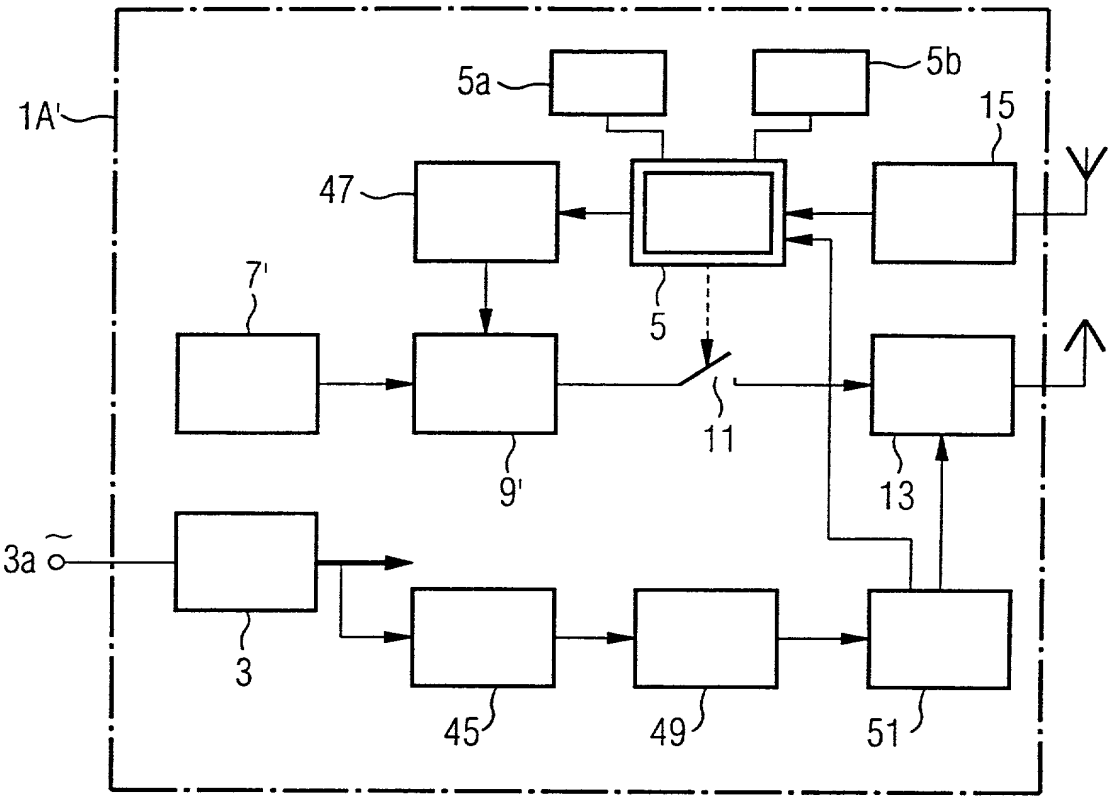

1A
5a
5b
15
5
7
9
11
13
3
3a
1B
37
35
29
39
33
43
31
17
29a
41
29b
19
21
23
25
27
1

FIG 2



Declaration and Power of Attorney For Patent Application
Erklärung Für Patentanmeldungen Mit Vollmacht
German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

As a below named inventor, I hereby declare that:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

My residence, post office address and citizenship are as stated below next to my name,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Schnurlostelefon

Cordless telephone

deren Beschreibung

the specification of which

(zutreffendes ankreuzen)
☐ hier beigefügt ist.
☒ am 21.03.2000 als
PCT internationale Anmeldung
PCT Anmeldungsnummer PCT/DE00/00876
eingereicht wurde und am _____
abgeändert wurde (falls tatsächlich abgeändert).

(check one)
☐ is attached hereto.
☒ was filed on 21.03.2000 as
PCT international application
PCT Application No. PCT/DE00/00876
and was amended on _____
(if applicable)

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

German Language Declaration

Prior foreign appplications
Priorität beansprucht

			Priority Claimed	
19913885.0	DE	26.03.1999	☒	☐
(Number) (Nummer)	(Country) (Land)	(Day Month Year Filed) (Tag Monat Jahr eingereicht)	Yes Ja	No Nein
			☐	☐
(Number) (Nummer)	(Country) (Land)	(Day Month Year Filed) (Tag Monat Jahr eingereicht)	Yes Ja	No Nein
			☐	☐
(Number) (Nummer)	(Country) (Land)	(Day Month Year Filed) (Tag Monat Jahr eingereicht)	Yes Ja	No Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozeßordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35. United States Code. §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occured between the filing date of the prior application and the national or PCT international filing date of this application.

PCT/DE00/00876 (Application Serial No.) (Anmeldeseriennummer)	21.03.2000 (Filing Date D, M, Y) (Anmeldedatum T, M, J)	anhängig (Status) (patentiert, anhängig, aufgegeben)	pending (Status) (patented, pending, abandoned)
_____ (Application Serial No.) (Anmeldeseriennummer)	(Filing Date D,M,Y) (Anmeldedatum T, M; J)	_____ (Status) (patentiert, anhängig, aufgeben)	(Status) (patented, pending, abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsatzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

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Voller Name des einzigen oder ursprünglichen Erfinders:	Full name of sole or first inventor:
ALBERT BUECKERS	ALBERT BUECKERS
Unterschrift des Erfinders / Datum	Inventor's signature / Date
17.08.01	17.08.01
Wohnsitz	Residence
METELEN, DEUTSCHLAND	METELEN, GERMANY
Staatsangehörigkeit	Citizenship
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